

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-3. (Cancelled)

4. (Currently Amended) A radio apparatus according to Claim [[3]] 5, wherein said acquiring unit further includes:

a storage which stores the virtual response vectors whose values of mutual correlation therewith are less than or equal to a predetermined threshold value; and

a selector which selects a virtual response vector from the virtual response vectors stored in said storage.

5. (Currently Amended) A radio apparatus, including:

a computing unit which computes a received response vector of a terminal apparatus which is a targeted communication party, based on signals received from the targeted terminal apparatus, the received response vector indicating a received response characteristic of a received signal from the terminal apparatus against a transmission signal;

an acquiring unit which acquires one of virtual response vectors with respect to corresponding one of a plurality of virtual terminal apparatuses assumed such that directions in which the plurality of virtual terminal apparatuses exist are mutually different from each other, the virtual response vectors being stored in advance;

a generator which generates a transmission weight vector based on the received response vector computed by said computing unit and the one of the virtual response vectors acquired by

said acquiring unit, the received response vector and the virtual response vectors being used to form the transmission weight vector indicting an antenna's directional pattern such that a signal strength in a direction to the terminal apparatus becomes greater whereas a signal strength in a direction to one of the virtual terminal apparatuses becomes smaller; and

a transmitter which transmits a predetermined signal to the targeted terminal apparatus based on the transmission weight vector generated by said generator, wherein

said acquiring unit acquires again another virtual response vector such that one of the direction in which the one of the virtual terminal apparatus exists is changed to another direction, and the thus reacquired virtual response vector is again subject to processes by said generator and said transmitter, and

said acquiring unit reacquires another virtual response vector whose value of correlation with the received response vector computed by said computing unit is less than or equal to a predetermined threshold value, and the thus reacquired virtual response vector is again subject to the processes by said generator and said transmitter,

[[A]] the radio apparatus according to Claim 3, further including:

a measuring unit which measures the intensity of a signal received from the targeted terminal apparatus; and

an intensity determining unit which instructs said acquiring unit to switch to the virtual response vector whose value of correlation with the received response vector computed by said computing unit becomes less than or equal to a predetermined threshold value if a signal strength value of the targeted terminal apparatus, which is calculated from the transmission weight vector, the received response vector and information on the intensity of the received signal measured by said measuring unit, is less than or equal to a threshold value.

6. (Currently Amended) A radio apparatus, including:

a computing unit which computes a received response vector of a terminal apparatus which is a targeted communication party, based on signals received from the targeted terminal apparatus, the received response vector indicating a received response characteristic of a received signal from the terminal apparatus against a transmission signal;

an acquiring unit which acquires one of virtual response vectors with respect to corresponding one of a plurality of virtual terminal apparatuses assumed such that directions in which the plurality of virtual terminal apparatuses exist are mutually different from each other, the virtual response vectors being stored in advance;

a generator which generates a transmission weight vector based on the received response vector computed by said computing unit and the one of the virtual response vectors acquired by said acquiring unit, the received response vector and the virtual response vectors being used to form the transmission weight vector indicting an antenna's directional pattern such that a signal strength in a direction to the terminal apparatus becomes greater whereas a signal strength in a direction to one of the virtual terminal apparatuses becomes smaller; and

a transmitter which transmits a predetermined signal to the targeted terminal apparatus based on the transmission weight vector generated by said generator, wherein

said acquiring unit acquires again another virtual response vector such that one of the direction in which the one of the virtual terminal apparatus exists is changed to another direction, and the thus reacquired virtual response vector is again subject to processes by said generator and said transmitter, and

said acquiring unit reacquires another virtual response vector whose value of correlation with the received response vector computed by said computing unit is less than or equal to a

predetermined threshold value, and the thus reacquired virtual response vector is again subject to the processes by said generator and said transmitter,

[[A]] the radio apparatus according to Claim 3, further including:

a measuring unit which measures the intensity of a signal received from the targeted terminal apparatus; and

an intensity determining unit which instructs said transmitter to increase the intensity of signals to be transmitted to the targeted terminal apparatus if a signal strength value of the targeted terminal apparatus, which is calculated from the transmission weight vector, the received response vector and information on the intensity of the received signal measured by said measuring unit, is less than or equal to a threshold value.

7. (Previously Presented) A radio apparatus according to Claim 5, wherein said intensity determining unit estimates the signal strength value of the targeted terminal apparatus from a value of correlation between the received response vector and the one of the virtual response vectors.

8-12. (Cancelled)

13. (Currently Amended) A transmission method according to Claim 14 [[12]], wherein said acquiring one of the virtual response vectors further includes:

referring to a table storing the virtual response vectors whose values of mutual correlation therewith are less than or equal to a predetermined threshold value and selecting a virtual response vector from the virtual response vectors.

14. (Currently Amended) A transmission method, including:

computing a received response vector of a terminal apparatus which is a targeted communication party, based on signals received from the targeted terminal apparatus, the received response vector indicating a received response characteristic of a received signal from the terminal apparatus against a transmission signal;

acquiring one of virtual response vectors with respect to corresponding one of a plurality of virtual terminal apparatuses different from the terminal apparatus which is a targeted communication party and assumed such that directions in which the plurality of virtual terminal apparatuses exist are mutually different from each other, the virtual response vectors being stored in advance;

generating a transmission weight vector based on the received response vector computed in said computing and the virtual response vector acquired in said acquiring, the received response vector and the virtual response vectors being used to form the transmission weight vector indicting an antenna's directional pattern such that a signal strength in a direction to the terminal apparatus becomes greater whereas a signal strength in a direction to one of the virtual terminal apparatuses becomes smaller; and

transmitting a predetermined signal to the targeted terminal apparatus based on the transmission weight vector generated by said generating, wherein

said acquiring one of the virtual response vectors is such that another virtual response vector is acquired again so as to change from the direction in which the one of virtual terminal apparatuses exists to another direction in which another virtual terminal apparatus exists, and the thus reacquired virtual response vector is again subject to processes by said generating a transmission weight vector and said transmitting a predetermined signal, and

said acquiring one of the virtual response vectors is such that a virtual response vector whose value of correlation with the received response vector computed by said computing is less than or equal to a predetermined threshold value is reacquired, and the thus reacquired virtual response vector is again subject to the processes by said generating a transmission weight vector and said transmitting a predetermined signal,

[[A]] the transmission method according to Claim 12, further including:

measuring the intensity of a signal received from the targeted terminal apparatus; and

instructing said acquiring one of the virtual response vectors to switch to a virtual response vector whose value of correlation with the received response vector computed by said computing becomes less than or equal to a predetermined threshold value if a signal strength value of the targeted terminal apparatus, which is calculated from the transmission weight vector, the received response vector and information on the intensity of the received signal measured by said measuring unit, is less than or equal to a threshold value.

15. (Currently Amended) A transmission method, including:

computing a received response vector of a terminal apparatus which is a targeted communication party, based on signals received from the targeted terminal apparatus, the received response vector indicating a received response characteristic of a received signal from the terminal apparatus against a transmission signal;

acquiring one of virtual response vectors with respect to corresponding one of a plurality of virtual terminal apparatuses different from the terminal apparatus which is a targeted communication party and assumed such that directions in which the plurality of virtual terminal apparatuses exist are mutually different from each other, the virtual response vectors being stored in advance;

generating a transmission weight vector based on the received response vector computed in said computing and the virtual response vector acquired in said acquiring, the received response vector and the virtual response vectors being used to form the transmission weight vector indicting an antenna's directional pattern such that a signal strength in a direction to the terminal apparatus becomes greater whereas a signal strength in a direction to one of the virtual terminal apparatuses becomes smaller; and

transmitting a predetermined signal to the targeted terminal apparatus based on the transmission weight vector generated by said generating, wherein

said acquiring one of the virtual response vectors is such that another virtual response vector is acquired again so as to change from the direction in which the one of virtual terminal apparatuses exists to another direction in which another virtual terminal apparatus exists, and the thus reacquired virtual response vector is again subject to processes by said generating a transmission weight vector and said transmitting a predetermined signal, and

said acquiring one of the virtual response vectors is such that a virtual response vector whose value of correlation with the received response vector computed by said computing is less than or equal to a predetermined threshold value is reacquired, and the thus reacquired virtual response vector is again subject to the processes by said generating a transmission weight vector and said transmitting a predetermined signal,

[[A]] the transmission method according to Claim 12, further including:

measuring the intensity of a signal received from the targeted terminal apparatus; and

instructing said transmitting a predetermined signal to increase the intensity of signals to be transmitted to the targeted terminal apparatus if a signal strength value of the targeted terminal apparatus, which is calculated from the transmission weight vector, the received

response vector and information on the intensity of the received signal measured by said measuring unit, is less than or equal to a threshold value.

16. (Original) A transmission method according to Claim 14, wherein said instructing to switch to a virtual response vector is such that the signal strength value of the targeted terminal apparatus is estimated from a value of correlation between the received response vector and the virtual response vector.

17. (Previously Presented) A transmission method according to Claim 15, wherein said instructing to increase the intensity of signals is such that the signal strength value of the targeted terminal apparatus is estimated from a value of correlation between the received response vector and the one of the virtual response vectors.

18. (Cancelled)

19. (Cancelled)

20. (Currently Amended) A computer readable storage medium according to Claim 21 [[19]], wherein said acquiring one of the virtual response vectors further includes:

referring to a table storing the virtual response vectors whose values of mutual correlation therewith are less than or equal to a predetermined threshold value and selecting a virtual response vector from the virtual response vectors.

21. (Currently Amended) A computer readable storage medium encoded with a program executable by a computer, the program including the functions of:

computing a received response vector of a terminal apparatus which is a targeted communication party, based on signals received from the targeted terminal apparatus, the

received response vector indicating a received response characteristic of a received signal from the terminal apparatus against a transmission signal;

acquiring one of virtual response vectors with respect to corresponding one of a plurality of virtual terminal apparatuses different from the terminal apparatus which is a targeted communication party and assumed such that directions in which the plurality of virtual terminal apparatuses exist are mutually different from each other, the virtual response vectors being stored in advance;

generating a transmission weight vector based on the received response vector computed in said computing and the virtual response vector acquired in said acquiring, the received response vector and the virtual response vectors being used to form the transmission weight vector indicting an antenna's directional pattern such that a signal strength in a direction to the terminal apparatus becomes greater whereas a signal strength in a direction to one of the virtual terminal apparatuses becomes smaller; and

transmitting a predetermined signal to the targeted terminal apparatus based on the transmission weight vector generated by said generating, wherein

said acquiring one of the virtual response vectors is such that another virtual response vector whose value of correlation with the received response vector computed by said computing is acquired again so as to change from the direction in which the one of virtual terminal apparatuses exists to another direction in which another virtual terminal apparatus exists, and the thus reacquired virtual response vector is again subject to processes by said generating a transmission weight vector and said transmitting a predetermined signal, and

said acquiring one of the virtual response vectors is such that a virtual response vector whose value of correlation with the received response vector computed by said computing is less

than or equal to a predetermined threshold value is reacquired, and the thus reacquired virtual response vector is again subject to the processes by said generating a transmission weight vector and said transmitting a predetermined signal,

[[A]] the computer readable storage medium according to Claim 19, further including:
measuring the intensity of a signal received from the targeted terminal apparatus; and
instructing said acquiring one of the virtual response vectors to switch to a virtual response vector whose value of correlation with the received response vector computed by said computing becomes less than or equal to a predetermined threshold value if a signal strength value of the targeted terminal apparatus, which is calculated from the transmission weight vector, the received response vector and information on the intensity of the received signal measured by said measuring unit, is less than or equal to a threshold value.

22. (Currently Amended) A computer readable storage medium encoded with a program executable by a computer, the program including the functions of:

computing a received response vector of a terminal apparatus which is a targeted communication party, based on signals received from the targeted terminal apparatus, the received response vector indicating a received response characteristic of a received signal from the terminal apparatus against a transmission signal;

acquiring one of virtual response vectors with respect to corresponding one of a plurality of virtual terminal apparatuses different from the terminal apparatus which is a targeted communication party and assumed such that directions in which the plurality of virtual terminal apparatuses exist are mutually different from each other, the virtual response vectors being stored in advance;

generating a transmission weight vector based on the received response vector computed in said computing and the virtual response vector acquired in said acquiring, the received response vector and the virtual response vectors being used to form the transmission weight vector indicting an antenna's directional pattern such that a signal strength in a direction to the terminal apparatus becomes greater whereas a signal strength in a direction to one of the virtual terminal apparatuses becomes smaller; and

transmitting a predetermined signal to the targeted terminal apparatus based on the transmission weight vector generated by said generating, wherein

said acquiring one of the virtual response vectors is such that another virtual response vector whose value of correlation with the received response vector computed by said computing is acquired again so as to change from the direction in which the one of virtual terminal apparatuses exists to another direction in which another virtual terminal apparatus exists, and the thus reacquired virtual response vector is again subject to processes by said generating a transmission weight vector and said transmitting a predetermined signal, and

said acquiring one of the virtual response vectors is such that a virtual response vector whose value of correlation with the received response vector computed by said computing is less than or equal to a predetermined threshold value is reacquired, and the thus reacquired virtual response vector is again subject to the processes by said generating a transmission weight vector and said transmitting a predetermined signal,

[[A]] the computer readable storage medium according to Claim 19, further including:

measuring the intensity of a signal received from the targeted terminal apparatus; and

instructing said transmitting a predetermined signal to increase the intensity of signals to be transmitted to the targeted terminal apparatus if a signal strength value of the targeted

terminal apparatus, which is calculated from the transmission weight vector, the received response vector and information on the intensity of the received signal measured by said measuring unit, is less than or equal to a threshold value.

23. (Previously Presented) A computer readable storage medium according to Claim 21, wherein said instructing to switch to a virtual response vector is such that the signal strength value of the targeted terminal apparatus is estimated from a value of correlation between the received response vector and the virtual response vector.

24. (Previously Presented) A computer readable storage medium according to Claim 22, wherein said instructing to increase the intensity of signals is such that the signal strength value of the targeted terminal apparatus is estimated from a value of correlation between the received response vector and the one of the virtual response vectors.